

1. A nozzle for dispensing multiple liquid filaments onto a moving substrate with a swirled pattern, comprising:

a nozzle body having a first side and a second side, said first side adapted for coupling to a dispenser body, and including a liquid inlet

5 and an air inlet;

a recess formed in said second side of said nozzle body;

a surface on said second side of said nozzle body extending from within said recess;

at least one liquid discharge passage extending through said 10 recess and having a central axis and a radius extending from said central axis, said liquid discharge passage communicating with said liquid inlet and having a liquid discharge outlet proximate said surface; and

a plurality of air discharge passages in said nozzle body, said 15 air discharge passages communicating with said air inlet and opening into said recess adjacent said surface, said air discharge passages angled in a direction generally toward said liquid discharge outlet and offset from said central axis by a distance about equal to said radius of said liquid discharge passage.

2. The nozzle of claim 1, wherein said surface is inclined toward said liquid discharge outlet.

3. The nozzle of claim 1, wherein said surface comprises a projection extending from within said recess.

4. The nozzle of claim 1, wherein said plurality of air discharge passages have respective air discharge outlets positioned in a generally square pattern about said liquid discharge outlet.

5. The nozzle of claim 1, wherein each of said air discharge passages is offset the same distance from said central axis of said liquid discharge passage.

6. A module for dispensing multiple liquid filaments onto a moving substrate with a swirled pattern, comprising:

a dispenser body having a liquid supply passage and an air supply passage for respectively receiving liquid and air;

5 a nozzle body having a first side and a second side, said first side coupled to said dispenser body, and including a liquid inlet and an air inlet in communication with said respective liquid and air supply passages of said dispenser body;

a recess formed in said second side of said nozzle body;

10 a surface on said second side of said nozzle body and extending from within said recess;

at least one liquid discharge passage extending through said recess and having a central axis and a radius extending from said central axis, said liquid discharge passage communicating with said liquid inlet and

15 having a liquid discharge outlet proximate said surface; and

a plurality of air discharge passages in said nozzle body, said air discharge passages communicating with said air inlet and opening into said recess adjacent said surface, said air discharge passages angled in a direction generally toward said liquid discharge outlet and offset from said

20 central axis by a distance about equal to said radius of said liquid discharge passage.

7. The module of claim 6, wherein said surface is inclined toward said liquid discharge outlet.

8. The module of claim 6, wherein said surface comprises a projection extending from within said recess.
9. The module of claim 6, wherein said plurality of air discharge passages have respective air discharge outlets positioned in a generally square pattern about said liquid discharge outlet.
10. The module of claim 6, wherein each of said air discharge passages is offset the same distance from said central axis of said liquid discharge passage.